

REMARKS

Claims 1-45 and 47-58 are pending in the application.

Claims 1-16, 21-36, 38-40, 42-45 and 47-58 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Pavate, U.S. Patent No. 6,001,227 as combined with Woodard, U.S. Patent No. 5,494,743, in further view of either of Nakanouchi, U.S. Patent No. 4,584,078 or Sawamura, U.S. Patent No. 4,232,970. The Examiner is reminded by direction to MPEP § 2143 that a proper obviousness rejection has the following three requirements: 1) there must be some suggestion or motivation to modify or combine reference teachings; 2) there must be a reasonable expectation of success; and 3) the combined references must teach or suggest all of the claim limitations. Claims 1-16, 21-36, 38-40, 42-45 and 47-58 are allowable over the cited combinations of Pavate, Woodard, Nakanouchi and Sawamura for at least the reason that the references, individually or as combined, fail to disclose or suggest each and every limitation in any of those claims..

With respect to independent claim 1, such recites filtering a fluid through a substrate, particulates from a fluid being retained on the substrate during the filtering, scanning across at least a portion of the substrate with a microscope and determining a relative contrast of two or more of the particulates. As noted by the Examiner at page 4 of the present action, Pavate fails to disclose or suggest determining a relative contrast of two or more particulates. Woodard discloses applying one or more layer of transparent metal oxides to form an antireflective coating over a carbon based polymer (col. 1, ll. 58 through col. 2, ll. 1). Woodard further discloses that the organic polymer substrate has an index of refraction of from about 1.2 to about 1.7 (col. 4, ll. 51-53), and that the antireflection coatings comprise one or more metal oxide or oxynitride having a refractive index of from about 1.4 to about 2.7 (col. 5, ll. 10-15). Woodard additionally discloses utilizing an

electron microscope to observe the porous, dendritic or noncontinuous nature of the resulting antireflection coatings (col. 9, ll. 24-27 and Figs. 7 and 8). Woodard does not disclose or suggest the claim 1 recited determining a relative contrast of two or more particulates. Accordingly, as combined, Pavate and Woodard fail to disclose or suggest the claim 1 recited filtering a fluid through a substrate, particulates from the fluid being retained on the substrate during the filtering, and determining the relative contrast of two or more of the particulates.

Neither Nakanouchi nor Sawamura disclose or suggest the claim 1 recited determining a relative contrast of two or more particulates. As combined, Pavate, Nakanouchi, Sawamura and Woodard fail to disclose or suggest the claim 1 recited filtering a fluid through a substrate, particulates from the fluid being retained on the substrate during the filtering and determining a relative contrast of two or more of the particulates. Accordingly, independent claim 1 is not rendered obvious by the combination of Pavate, Nakanouchi, Sawamura and Woodard and is allowable over these references.

Dependent claims 2-8 are allowable over the cited combination of Pavate, Woodard, Sawamura and Nakanouchi for at least the reason that they depend from allowable base claim 1.

Independent claims 9, 14 and 40 each recite filtering through a substrate, retaining at least some components, undissolved material or impurities being retained on the substrate during the filter, and collecting information relating to a relative contrast or darkness of the components, undissolved material or impurities. Independent claims 9, 14 and 40 are allowable over the cited combinations of Pavate, Woodard, Nakanouchi and Sawamura for at least reasons similar to those discussed above with respect to independent claim 1.

Dependent claims 10-13, 15-16, 21-34 and 42-44 are allowable over the cited combinations of Pavate, Woodard, Nakanouchi and Sawamura for at least the reason that they depend from corresponding allowable base claims 9, 14 and 40.

Independent claim 35 recites scanning across a portion of a filter surface with a light microscope to obtain data about scattering of light by undissolved components on the filter surface. Claim 35 further recites the undissolved components comprising a first type of component being darker than the background and a second type of component being lighter than the background. Not one of Pavate, Nakanouchi, Woodard or Sawamura disclose or suggest the recited utilizing a light microscope to scan a portion of a filter surface to obtain about scattering of light by a first type of component which is darker than the background and a second type of component which is lighter than the background. As combined, Pavate, Nakanouchi, Woodard and Sawamura do not disclose or suggest the claim 35 recited scanning across a portion of a filter surface with a light microscope to obtain data about scattering of light by undissolved components on the filter surface, one type of component being darker than the background and a second type being lighter than the background. Accordingly, independent claim 35 is not rendered obvious by the cited combinations of Pavate, Nakanouchi, Sawamura and Woodard and is allowable over these references.

Dependent claims 36 and 38-39 are allowable over the cited combinations of Pavate, Woodard, Nakanouchi and Sawamura for at least the reason that they depend from allowable base claim 35.

Independent claim 45 recites using a reagent comprising a mixture of hydrofluoric acid and nitric acid to selectively dissolve portions of the composition, the dissolved portions forming a solution with the reagent. Claim 45 additionally recites filtering a

solution through a substrate, at least a portion of impurities being retained on the substrate.

As noted by the Examiner at page 3 of the present action, Pavate discloses dissolving in an aqueous solution having 30% HCl, collecting solids out of the HCl solution onto a filter, and subsequently dissolving off copper utilizing a 10% HNO₃ solution. Pavate does not disclose or suggest the claim 45 recited dissolving utilizing a reagent comprising a mixture of hydrochloric acid and nitric acid, and filtering the solution through a substrate at least a portion of the impurities being retained on the substrate.

Not one of Nakanouchi, Sawamura or Woodard disclose or suggest the claim 45 recited utilizing a reagent comprising a mixture of hydrofluoric acid and nitric acid to selectively dissolve portions of the composition. As combined, Pavate, Nakanouchi, Sawamura and Woodard fail to disclose or suggest the claim 45 recited utilizing a reagent comprising a mixture of hydrochloric acid and nitric acid to selectively dissolve portions of a composition, the dissolved portions forming a solution with the reagent, and filtering the solution through a substrate, at least a portion of the impurities being retained on the substrate. Accordingly, independent claim 45 is allowable over the various cited combinations of Pavate, Nakanouchi, Sawamura and Woodard.

Dependent claims 47-49 are allowable over the cited combinations of Nakanouchi, Pavate, Sawamura and Woodard for at least the reason that they depend from allowable base claim 45.

Independent claim 50 recites subdividing a flow pattern onto a grid pattern, the grid pattern defining points at which a light microscope will scan the surface of the flow pattern.

Claim 50 further recites the grid pattern defining a sufficient number of points for the microscope to scan at least 5% of the flow pattern surface. Pavate discloses collecting solids onto a filter and determining an inclusion size distribution utilizing manual light

microscopy techniques such as ASTM F24 and F25. Pavate does not disclose or suggest the claim 50 recited subdividing a flow pattern into a grid, the grid pattern defining points at which a light microscope will scan a surface of the flow pattern, the pattern defining a sufficient number of points for the microscope to scan at least 5% of the flow pattern surface. Not one of Nakanouchi, Sawamura or Woodard disclose or suggest the claim 50 recited subdividing a flow pattern into a grid pattern or the recited grid pattern defining points at which a light microscope will scan a surface of the flow pattern or the recited grid pattern defining a sufficient number of points for the microscope to scan at least 5% of the flow pattern surface. Pavate, as combined with one or more of Nakanouchi, Sawamura and Woodard fails to disclose or suggest the claim 50 recited grid pattern defining points at which a light microscope will scan a surface of a flow pattern, the grid defining a sufficient number of points to scan at least 5% of the flow pattern surface. Accordingly, claim 50 is allowable over the cited combinations of Pavate, Nakanouchi, Sawamura and Woodard.

Dependent claims 51-58 are allowable over the cited combinations of Pavate, Nakanouchi, Sawamura and Woodard for at least the reason that they depend from allowable base claim 50.

Claims 17-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Pavate, Woodard, Nakanouchi and Sawamura, as further combined with King, U.S. Patent No. 4,697,080. As discussed above, independent claim 14 is not rendered obvious by the combination of Sawamura, Pavate, Nakanouchi and Woodard. King is relied on by the Examiner for teaching calculation of concentrations of different elements in a composition. King does not disclose or suggest the claim 14 recited obtaining data relating to a relative contrast of undissolved material retained on a substrate. As combined, King, Nakanouchi, Pavate, Sawamura and Woodard fail to

disclose or suggest the claim 14 recited obtaining data relating to a relative contrast of retained undissolved material. Accordingly, independent claim 14 is not rendered obvious by the cited combination of King, Nakanouchi, Sawamura, Woodard and Pavate and is allowable over these references. Dependent claims 17-20 are allowable over the combination of King, Nakanouchi, Sawamura, Pavate and Woodard for at least the reason that they depend from allowable base claim 14.

Dependent claims 37 and 41 stand rejected 35 U.S.C. § 103(a) as being unpatentable over the combination of Pavate, Woodard, Nakanouchi and Sawamura as further combined with Kitamura, U.S. Patent No. 5,477,049. Kitamura is relied upon by the Examiner for teaching displaying results as a histogram. Kitamura does not disclose or suggest the claim 35 recited utilizing a light microscope to scan a portion of the filter surface to obtain data about scattering of light by a first type of component which is darker than a background and a second type of components which is lighter than a background. Accordingly, the combination of Pavate, Nakanouchi, Kitamura, Sawamura and Woodard fails to disclose or suggest the independent claim 35 recited obtaining data about scattering of light by a first type of component which is darker than a background and a second type of component which is lighter than a background. Independent claim 35 is therefore not rendered obvious by the cited combination of Pavate, Nakanouchi, Woodard, Sawamura and Kitamura. Dependent claim 37 is allowable for at least the reason that it depends from allowable base claim 35.

As discussed above, independent claim 40 is not rendered obvious by the cited combination of Pavate, Woodard, Nakanouchi and Sawamura. Kitamura does not disclose or suggest the claim 40 recited obtaining data about darkness of impurities relative to a background defined by a substrate. As combined, Pavate, Woodard, Nakanouchi,

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Sawamura and Kitamura fail to disclose or suggest the claim 40 recited obtaining data about a relative darkness of impurities relative to a background defined by a substrate, a first type of impurities being darker than the background and a second type of impurity being lighter than the background. Accordingly, independent claim 40 is allowable over the cited combination of Pavate, Woodard, Nakanouchi, Sawamura and Kitamura. Dependent claim 41 is allowable over the cited combination of Pavate, Woodard, Nakanouchi, Sawamura and Kitamura for at least the reason that it depends from allowable base claim 40.

For the reasons discussed above claims 1-45 and 47-58 are allowable. Accordingly, applicant respectfully requests formal allowance of pending claims 1-45 and 47-58 in the Examiner's next action.

Respectfully submitted,

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